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TITLE: Investigating the Mechanisms of Action and the Identification of Breast Carcinogens by Computational Analysis of Female Rodent Carcinogens

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13. Abstract ***(Maximum 200 Words)*** *(abstract should contain no proprietary or confidential information)*

This project is investigating the potential that environmental estrogens may be involved in the etiology of breast cancer. We hypothesize that specific features of chemicals can be identified that are significantly associated with female and breast carcinogens and these features are related to mechanisms of chemical carcinogenesis. Our overall scientific objective is to investigate the hypothesized relationship between environmental chemicals, xenoestrogens, and the development of breast cancer.

To date we have accomplished only part of Specific Aim 1 or basically less than six months of scheduled work. This is due to my leaving the University of Pittsburgh and joining the faculty at Louisiana State University. Due to administrative details beyond my control, the funds are now only expected to be reaching LSU in the near future. I factored in a no-cost extension for year one in the modified budget. Therefore, technically, year one is not over for this project.

14. SUBJECT TERMS
structure-activity relationship (SAR), computer modeling, mechanisms and etiology of breast cancer, environmental carcinogens

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Investigating the mechanisms of action and the identification of breast carcinogens by computational analysis of female rodent carcinogens
DAMD17-01-1-0376

Albert R. Cunningham, Ph.D.

Introduction

The well-established breast cancer risk factors may account for only 47% of the breast cancer incidence in the United States. This leaves a considerable portion of breast cancer from undetermined origin. This project is investigating the potential that environmental estrogens may be involved in the etiology of breast cancer. We hypothesize that specific features of chemicals can be identified that are significantly associated with female and breast carcinogens and these features are related to mechanisms of chemical carcinogenesis. Our overall scientific objective is to investigate the hypothesized relationship between environmental chemicals, xenoestrogens, and the development of breast cancer.

Body

Only a small portion of the specific aim set forth in the statement of work for year one has been met. We have created searchable Excel databases based on cancer bioassay data provided from the National Toxicology Program and the Carcinogenic Potency Database. In total, specific aim 1a and 1b are partially met.

The reason for this lack of progress is that approximately six months into year one (January 2002) I moved from the University of Pittsburgh to Louisiana State University. Likewise, I started packing my lab and equipment sometime before January. My intention was to arrive at LSU, hire staff, and immediately begin work by February 2002. However, the funds for year one have not yet arrived at LSU. Hence, no work has proceeded on the project.

As for technical matters, my lab is now set up and operational. As part of my start-up package at LSU and equipment from Pitt, my lab is fully equipped and exceeds the necessary requirements for completing this project. I have also placed an advertisement in *Science* soliciting a postdoctoral fellow to work on this project. Moreover, LSU has graciously provided me with a no-cost undergraduate student worker who is starting immediately to work on this project.

As I understand the current situation, my award transfer has been finalized and just requires signatures from LSU. Moreover, in redoing the budget, I added several extra "free" months to make up for lost time. I did not anticipate that it would take this long, so I again plan on asking for a no-cost extension of year one. Therefore, technically I am submitting an annual report for less than a year's actual work on the project. Once on track, I am confident that tasks set forth for completion in year one will be achieved in the upcoming six months.

Key Research Accomplishments

- Creation of searchable database of rodent carcinogens based on data from the National Toxicology Program and the Carcinogenic Potency Database

Reportable Outcomes

- Merit of the award was helpful in obtaining a position at LSU

Conclusion

My move to LSU has caused a significant disruption in my total research agenda including this project. However, now that I am settled and my lab is up and running, I have an undergrad assistant and expect to shortly hire a postdoc for this project. I am confident that I will be able to met the goals of this project as originally set forth.